Science Education Partnership Awards (SEPA)
Fiscal Year 2001
5/16/2001

Biomedical Research for Arizona Teachers
University of Arizona - R25 RR15644

This project will improve and expand the successful *General Biology Program for Teachers* that offers graduate-level science instruction in cell and molecular biology to middle and high school biology teachers. A master's degree program that offers research opportunities at the University of Arizona is also provided to the teachers.

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Biomedical Training, Research and College Prep (BIOTRAC)
Miami Museum of Science - R25 RR15590

This project is a partnership among the University of Miami, the Miami-Dade County public school system, and the Miami Museum of Science. The project goal is to expand a biomedical research program that stimulates under-served high school students' interest in biomedical careers through hands-on laboratory activities, on-line research, and site visits to research facilities that offer students opportunities to interact with research scientists. A replicable model program, that exposes students to research on selected priority areas outlined in *Healthy People 2010* and that are also relevant to Miami-Dade's diverse population, will be designed and implemented at the Museum.

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Birmingham Science Education Partnership (BSEP) – Phase I
University of Alabama - R25 RR15633

This project is a partnership between the University of Alabama's McWane Science Center and the Birmingham city school system. It is composed of five interrelated programs for high school teachers and students that provide laboratory-based learning experiences in genetics, molecular biology, microbiology, and the application of these fields to advances in modern medicine.

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***BodyLink:* A Health Sciences Update Center**
Maryland Science Center - R25 RR15602

This project is a cooperative effort between the Maryland Science Center, the Johns Hopkins Medical Institutions, and the University of Maryland in Baltimore. Together, they will develop a multi-media center, called *BodyLink*, that will allow visitors to discover and appreciate the wonders of cutting-edge basic and clinical medical research through interactive exhibits, stunning imagery, and facilitated demonstrations. The *BodyLink* project will include an interactive Web site that increases accessibility of the center to schools and the public, and a mentored research component for minority students.

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Bone Zone
Children's Museum of Indianapolis - R25 RR15662

The goals of the *Bone Zone* project are to: 1) develop an interactive, traveling exhibit about bones to promote an understanding of the skeletal system and bone-related diseases among children and the public; 2) develop curriculum materials and workshops for teachers; and, 3) stimulate interest in health science careers. *Bone Zone* will emphasize interactive hands-on activities.

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Brain Research in Education
University of Washington - R25 RR15591

Brain Research in Education is an on-line teacher development project that builds on existing partnerships to provide ways for K-12 teachers to learn about current brain research and its application to classroom studies. This project will use state-of-the-art tools and expertise that is available at the University of Washington's online educational outreach distance learning. In this way, the project can be widely disseminated, especially to remote under-served rural areas. This project is guided and supported by the Washington education community composed of individuals, educational institutions and associations, and the Washington State Parent Teacher Association.

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Broadening of a Basic Race and Gender Equity Program for Science Education
Walter Reed Army Institute of Research - R25 RR15629

The goal of this project is to extend the reach of current health science programs that are targeted to females, African-American high school students, and elementary school teachers, located in the Washington, DC metropolitan area. The project includes laboratory apprenticeships, student mentoring, and an interactive Web site to help students and teachers establish contact with scientists nationwide.

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Bronx Science Education Partnership
Montefiore Medical Center - R25 RR15677

This partnership among the Albert Einstein College of Medicine, the Montefiore Medical Center, the New York Academy of Medicine, the New York Hall of Science, and ten Bronx public schools and one parochial school, will develop and evaluate a model biomedical science education partnership and teacher training program. The program goal is to enhance health education and improve the health of students in Bronx public schools. This program will include field trips, traveling laboratory kits in microbiology and immunology, a speaker bureau of clinicians and research scientists to visit trained teachers' classrooms, and field trips to hospitals, health centers, and laboratories.

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BSC *CityLab* Satellite: Biotech for Students and Teachers
Bridgewater State College (BSC) - R25 RR15600

This project expands the BSC *CityLab* Satellite program and builds on the highly successful partnership among BSC, Boston University School of Medicine's (BUSM) *CityLab* project, two local school districts, and the Partnership Advancing the Learning of Mathematics and Science (PALMS) Southeast Regional Provider. The collaborators plan to develop an inquiry-based curriculum designed to develop a conceptual understanding of fundamental topics in molecular biology, biochemistry and/or biotechnology using the BUSM *CityLab* approach as a model. The proposed curriculum will coordinate the development of concepts for students K-4 4, expand the existing curriculum for grades 5-12, and train both pre-and in-service teachers. The project includes a summer camp for middle school students, an after school (*CityLab* scholars) program during the school year and workshops / courses for both pre-service and in-service teachers. Trained *CityLab* teachers will be able to bring their students to the *CityLab* satellite site at Bridgewater State College for extra or co curricular *CityLab* experiences. A lending library of

equipment for use in the schools will also be made available to trained teachers though this program. All of these activities will be modeled on the BUSM *CityLab* approach, which emphasizes a coherent progression of inquiry, a laboratory based experimental component, and pedagogy designed to foster cognitive skills associated with scientific ways of thinking.

http://webhost.bridgew.edu/citylab/

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***CityLab:* A Biotechnology Learning Laboratory**
Boston University School of Medicine - R25 RR07591

CityLab is a regional biotechnology learning laboratory that provides otherwise unavailable state-of-the art biotechnology laboratory facilities and curricula to schools, teachers, and students. *CityLab* challenges students to solve scientific problems by applying the same techniques and concepts of genetics and molecular biology that are currently used in modern biotechnology laboratories. This project will further disseminate the *CityLab* program nationwide via telecommunications, satellite sites, and a mobile laboratory known as *MobileLab.* The project will also distribute the curriculum and produce a replication manual for institutions interested in establishing an independent learning laboratory.

http://www.bumc.bu.edu/citylab

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***Dangerous Decibels*™: Partnerships in Public Health**
Oregon Museum of Science and Industry (OMSI) - R25 RR15634

Dangerous Decibels™ is designed as a model program for schools and communities around the country on how to teach young people about the value of their hearing, how hearing is damaged, and how to protect hearing. The project has brought together a consortium of innovative basic science researchers, museum educators, civic leaders, and volunteers, in a unique public/private partnership to reduce the incidence and prevalence of noise induced hearing loss. OMSI is working with the Oregon Hearing Research Center at the Oregon Health Sciences University, the Portland Veterans Administration Medical Center National Center of Rehabilitative Auditory Research, the American Tinnitus Association, and Oregon and Southwest Washington elementary and secondary schools. The project is comprised of three free-standing, but interlocking, components that create a strong regional model program and implementation strategy for hearing science education and hearing loss prevention. These components are exhibitry, curriculum, and research. The project will include a full exhibit on the floor at OMSI; curriculum, assemblies, and kits for schools and communities; and, research dissemination and data acquisition.

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***Detectives in the Classroom* – Phase I**
Montclair State University - R25 RR15281

This project develops and tests five epidemiology-based instructional modules called *Detectives in the Classroom*, designed to improve students' fundamental abilities in science as inquiry and to increase their interest in science. The modules will be created and refined in partnership with an advisory board of teachers and health professionals, field-tested by a team of 20 middle school teachers, and reviewed by the Centers for Disease Control and Prevention (CDC) Epidemiology Program Office staff. Upon completion, the modules will be posted on a *Detectives in the Classroom* Web site, and considered for linkage to the CDC Excellence in Curriculum Integration through the Teaching Epidemiology Web site.

http://www.montclair.edu/pages/detectives

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Development of Microscope Imaging Station
Exploratorium - R25 RR15627

Working in collaboration with biomedical researchers from universities in the San Francisco area, across the nation, and abroad, this project will develop a Microscopic Imaging Station for museum visitors, students, teachers, and Internet users to view a variety of living specimens; and, provide a unique experience for the general public to experience the technology and tools used by biomedical researchers. Subject matter for the Imaging Station will be integrated into the ongoing middle and high school teacher professional development at the museum. Teachers will be permitted to use the Imaging Station to conduct their own experiments, develop classroom explorations, take away images, access the Web site from their classrooms, and share materials with other teachers.

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Environmental Health Sciences Training and Education Program (EH-STEP)
University of Medicine and Dentistry of New Jersey - R25 RR15621

This project seeks to enable students nationwide to improve their basic science and math skills while learning to reduce their exposure to potential pollutants and possibly prevent environment-related diseases and illnesses. Environmental health sciences (EHS) curricular materials will be disseminated through professional development opportunities for teachers provided by an active network of Regional Education and Training Centers (RETCs). Community Outreach and Education Programs (COEPs) of National Institute of Environmental Health Sciences (NIEHS) Centers of Excellence at Oregon State University, University of Arizona, University of Medicine and Dentistry of New Jersey, University of Southern California, University of Texas Medical Branch, University of Wisconsin-Madison, Vanderbilt University and Wayne State University are participating as RETCs. The EH-STEP model includes award-winning K-12 EHS curricula (such as UMDNJ's *ToxRAP*™ curriculum series), train-the-trainer workshops for RETCs, teacher professional development programs and scientist involvement, and is based on successful educational initiatives supported by the Toxicology Education Foundation, the Society of Toxicology and the NIEHS.

http://www.eohsi.rutgers.edu/rc/sepa.html

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An Epidemiologic Approach to EHS in High School Biology – Phase I
Foundation for Blood Research - R25 RR12328

This project is designed to encourage high school biology students to use epidemiological methods to evaluate environmental health concerns. Basic epidemiologic principles and specific environmental health issues, such as radon, cigarette smoke, and heavy metals, will be discussed. The project also includes summer institutes consisting of lectures, small group reading and discussions, and hands-on laboratory exercises.

http://www.usm.maine.edu/ams/envepi/

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Expanding Frontiers: Integrating Inquiry, Equity and Technology
American Physiological Society (APS) - R25 RR15251

This is a teacher development project that builds on APS' existing program, *Frontiers in Physiology*, which focuses on disseminating a model for integrating inquiry-based science education, promoting participation in science by all students, and using online communication technology in the classroom and for teacher development. The Frontiers program includes: 1) a summer biomedical research program; 2) exploration of the *National Science Education Standards* and effective teaching methods; 3) curriculum development; 4) building networks of teachers and researchers; and, 5) local outreach teams that involve teachers and researchers at a grassroots level in planning and conducting inquiry-based in-service programs for local teachers.

http://www.the-aps.org/education/frontiers/index.htm

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Expanding the HSTA Model of Science Education – Phase II
West Virginia University - R25 RR12329

Phase II of this project supports the West Virginia University Health Science and Technology Academy (HSTA) in four West Virginia counties by developing student-created, teacher-facilitated, Web sites as part of local HSTA activities. Teachers and HSTA students will use these Web sites to disseminate academic enrichment materials and inquiry-based science projects to non-HSTA participants statewide. HSTA programming serves minority and financially disadvantaged students (grades 8-12), helping them to build self-esteem, improve science and mathematical skills in preparations for college, and choose appropriate health career majors. The HSTA organization will also provide teachers, parents, and community health professionals, with increased knowledge, technical resources, and professional support, to better encourage students to consider and prepare for careers in science and related fields.

http://www.wv-hsta.org/nihsepa.htm

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***Family Health:* Explorations for Schools and Communities**
University of California, Berkeley - R25 RR12332

This project is a partnership between the Lawrence Hall of Science – a public science and technology center – and the Schools Wellness Program, both at the University of California at Berkeley. This model project will develop and disseminate hands-on activities and follow-up materials clustered around four major health science areas: nutrition and growth, respiratory health, disease prevention, and mental health and the brain. Through a series of leadership

training workshops, this project will partner health care professionals with teachers, parents, youth, and community educators, to form leadership teams for disseminating the *Family Health* materials.

http://www.lhs.berkeley.edu/familyhealth/

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Filling the Gaps: K-6 Science/Health Education
Baylor College of Medicine - R25 RR13454

Based on six years of experience obtained through previous SEPA-supported projects, a team of scientists and educators at Baylor College of Medicine are working with school districts, teachers, and parents, to identify significant gaps in health and science educational materials related to national curriculum and health priorities. Areas to be addressed include: 1) the shortage of age-appropriate, interdisciplinary, inquiry-based materials for K-6 students; 2) the need for materials that teach children and their families about the role of chemicals in the nervous system and the effects of drugs on normal functioning; and, 3) the lack of public understanding of chemical and biological food contamination and safe food-handling practices. To address these gaps, the team is creating a new interdisciplinary model for K-6 science and health education that will integrate science, health, reading, and math. Materials such as student story books, and inquiry-based and take-home activities for students and their families will be developed, tested, and disseminated.

http://www.myhealthmyworld.org

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Health Science Education Partnership
Museum of Science - R25 RR15653

A dedicated team at the Museum of Science's Current Science & Technology Center will develop and deliver daily live presentations, multimedia programs, and rapidly-changing exhibits, which will interpret health science stories in the news as well as the work of research teams at the Museum's seven partner institutions, for public and K-12 audiences, and for wider distribution. The Museum's partners on this initiative are: Harvard Medical School, Harvard School of Public Health, Whitehead Institute for Biomedical Research, Massachusetts General Hospital, McLean Hospital, Dana-Farber Cancer Institute, and MIT/Harvard Division of Health Sciences & Technology. The goals of the project are to (1) increase public understanding of significant areas of current research in biomedicine, biotechnology, and public health sciences, as well as the implications of such research; (2) encourage citizens to consider current research findings in making healthy lifestyle choices; (3) interest K-12 students in pursuing careers in these fields; and, (4) foster an informed and continuing public discussion on the social and ethical ramifications of new research in the life sciences.

www.mos.org/cst

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Health Science Guides – Phase I
Emory University School of Medicine - R25 RR12344

Emory University Medical School and the Morehouse School of Medicine have formed a collaboration to develop and disseminate a two-part project in health-related science education for upper-level elementary and middle school students (grades 4-8) and their teachers. An educational intervention part of the HSG project consists of recruitment and training of medical, nursing and public health students to serve as Health Science Guides Partners (HSGPs). HSGPs work with school personnel to help introduce health science concepts; assist with in-school, after-school, and summer enrichment activities; provide support for teachers; and serve as change facilitators. Teams of HSGPs work with teachers to organize and lead after-school health science clubs, Saturday Science Academies, classroom visits, a Summer Science Adventure camp, and health science professional development workshops led by HSG staff. The second part of the HSG program is a curriculum writing effort aimed at creating a CD/web-based health science game called Brain Voyager. Developed with initial funding from a Phase I NIH SEPA grant, Brain Voyager couches a learning experience on brain structure and function in the context of an interactive problem-solving adventure game for the middle-school player. It is intended to pose problems of neurobiology and questions of how nerves work and are organized in the brain and sensory systems, in a learning adventure framework. The scenario places the learner in a series of missions, diving into the brain in living 3D graphics as the pilot of the "Brain Voyager"

Bantam submarine which has been miniaturized to cell size.

http://www.emory.edu/CELLBIO/HSG/

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HealthWISE
San Joaquin County Office of Education - R25 RR12319

The *HealthWISE* (Health=Winning Investigations with Students and Elders) program will partner students and teachers from 30 elementary schools in California's north-central areas with retired science and health professionals and graduate students to enhance health science content and health education instruction at each school. This program will implement the California state-adopted curriculum, and the *Immunization Plus* and *Using Live Insects in Elementary Classroom for Early Lessons in Life* curricula.

www.edserv.sjcoe.net/healthwise

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***Healthy People 2010* Public Library Initiative**
American Association for the Advancement of Science (AAAS) - R25 RR15601

The goals of this project are to deliver the latest information about biomedical research – especially as it pertains to the goals of *Healthy People 2010* – to the public by working with libraries to create materials and disseminate information through a process that AAAS established in their *Science+Literacy for Health* projects; and, provide accurate, easy-to-read information about health issues to adults, especially minorities in low-income communities. Materials, both print and media resources, will be assembled in a "tool kit" to be disseminated nationally to other public libraries and community-based organizations.

http://www.healthlit.org/

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The Hispanic Role Model and Science Education Project
Self Reliance Foundation - R25 RR14320

The goal of this outreach project is to develop daily, nationally broadcast, Spanish language radio programming that: 1) encourages the development of science literacy in relation to biomedical research; 2) introduces careers in biomedical research and health professions; and, 3) provides parents with information on how their children can achieve academic success. Other services provided by the project are a toll-free "800" telephone number that links listeners with information and local resources, a Web site with education resources and links related to program topics, and a weekly newspaper column. The daily programs of the Self Reliance Foundation reach a weekly audience of more than 2 million.

http://www.selfreliancefoundation.org/

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***HutchLab:* A Science Learning and Leadership Program**
Fred Hutchinson Cancer Research Center - R25 RR14283

HutchLab is a science and education partnership project that brings scientists, teachers, and students, together at the Fred Hutchinson Cancer Research Center to build on the successful models established by *CityLab* at Boston University Medical Center and at the Pacific Northwest Labs at Battelle. The project goals are to provide: 1) integrated learning and investigative science experiences for students to develop and use their thinking skills and problem-solving abilities; 2) professional development in leadership and science content for teachers; 3) opportunities and training for scientists to work with teachers and students; and, 4) science education instructional materials and teaching strategies for teaching high school students.

http://www.fhcrc.org/education/hutchlab/

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***Inside Cancer*, Multimedia Education Resources for Cancer Genetics – Phase I**
Cold Spring Harbor Laboratory - R25 RR15622

This project will create an extensive Web site, *Inside Cancer*, which will use the most up-to-date technology to merge animation and video into a visually stimulating experience that will take people into the workings of the cancer cell, and into the laboratories of scientists who are revolutionizing cancer research.

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***Inspiring Inquiry:* SACNAS Teacher Scientist Partnerships**
Society for Advancement of Chicanos and Native Americans in Science (SACNAS) - R25 RR15649

The *Inspiring Inquiry* project will provide intensive, year-round mentorship and support to K-12 educators who work with under-represented minority students by: 1) developing a mentoring program that unites behavioral, biomedical, and health scientists with SACNAS K-12 teacher workshop participants; 2) collaborating with SACNAS partners to identify exemplary inquiry-based, behavioral, biomedical, health, and other science curricula, and train K-12 educators in their methodology and classroom implementation; 3) increasing the participation of K-12 educators, from schools that serve economically disadvantaged students of traditionally under-represented backgrounds, by providing full or partial funding for participation in this project; and, 4) producing and disseminating materials that encourage under-represented minority students to pursue careers in behavioral, biomedical, health, and other sciences, based on activities of participating teachers and scientists.

http://www.sacnas.org/k12.html

http://www.sacnas.org/k12works.html

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Journey to Planet Earth
Screenscope, Incorporated - R25 RR15606

This project will develop a Public Broadcasting Service science series and an educational outreach initiative to inform general audiences and middle school students about 21st century health and environmental issues. A variety of informal and formal educational contexts, to include ten of the country's leading science museums, will be used.

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K-12 Education: Enabling Science Careers
University of Texas Health Science Center - R25 RR15632

The goal is to improve science instruction in grades K–12 by establishing a nidus for setting high standards and expectations and developing curricula to attain them. The project will be carried out within a school district comprised of 37 schools aligned into four vertical teams, each including a high school and its feeder middle and elementary schools. Objectives are: 1) to develop, evaluate, and disseminate an elementary school science enhancement program, a middle school interactive video wellness course, featuring health scientists, and an advanced high school course (microbiology and pathophysiology) with interactive video sessions with biomedical scientists; 2) to provide research preceptorships for the professional development of science teachers; 3) to provide high school students contextual learning experiences through science preceptorships; 4) to provide high school students with an elective opportunity, AVID, aimed at helping average achievers prepare for college; and, 5) to support the district's quest to apply technology to change the way its diverse student population is taught.

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King/Drew Biomedical Science Education Partnership
Charles R. Drew University - R25 RR13293

The goals of this project are to provide extensive educational opportunities, experiences, and support, for 100 students (grades 10-12) attending the King-Drew High School of Medicine and Science so that they are: 1) encouraged to enroll in science courses beyond the school district's minimum requirements; and, 2) retained successfully in secondary-level science courses so that they are eligible for post-secondary science majors leading to careers in science, engineering, and technology. The program emphasizes science classes with enhanced biomedical science contexts, enrichment experiences in hospitals, Saturday Academy, technology and computer literacy, and "safety nets" (mentors, facilitators, enrichment activities, etc.). Program partners are Charles R. Drew University, the California State University's Council of Health-Related Programs, and the University of Southern California's School of Medical Education.

http://www.cdrewu.edu/SEPA/SEPA_HOME_PAGE.htm

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***KY-HEROS:* Health Education Rural Outreach Scientists COMB**
Louisville Science Center, Incorporated - R25 RR15656

Taking place at the Louisville Science Center, this project will partner nine rotating important regional biomedical research scientists, and develop a new science education program with statewide impact, called *KY-HEROS*. Exhibits and programs describing the scientists' research will also rotate. The scientists and their research teams will serve as role models for young people to encourage their continued participation in the health sciences. The program will use demonstrations, video-conferencing, distance-learning links, public programs, museum exhibits, a wet lab, traveling exhibit components, an interactive Web site, and printed materials, to disseminate information.

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***Making Connections:* Expanding Our Web**
University of Washington - R25 RR09840

This project is a neuroscience education partnership among the University of Washington, the Group Health Cooperative, the Pacific Science Center, and the Washington Association for Biomedical Research. The program has reached over 91,000 students (nearly one-fourth from under-represented groups) and over 7,000 teachers. Three primary educational components used are a mobile Brain Power program, a Scientist in the Classroom and community outreach program, and a summer institute for science teachers. Dissemination occurs in the states of Washington, Idaho, and Montana, through science museums, workshops, and the Internet.

http://www.son.washington.edu/centers/MakingConnections/

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Medical Ignorance (QQQ) Collaboratory K-12 Curriculum/Dissemination
University of Arizona - R25 RR15670

This program will develop, adapt, and evaluate, a K-12 version of the University of Arizona's Curriculum on Medical Ignorance (CMI), an innovative, multi-media approach that stimulates

inquiry-based learning by questioning the unknown and searching for the answers. Students K-12, science teachers, and doctorial scientists – to include many from disadvantaged, ethnic, minority, and indigenous groups – will be exposed to "doing science" in clinical medicine, underlying basic biology, and overlying public health, largely in the Arizona Health Sciences Center's specialized Centers of Excellence.

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Medical Mysteries from History: *The Reconstructors*
Rice University - R25 RR15295

Case histories of medical discovery will be transformed into "problem-based" multimedia mysteries for students to solve. Assuming the online role of a "reconstructor," who seeks lost medical knowledge from the past, students will unravel the origins of specific diseases or medical discoveries. The learning objectives for each episode will be multidisciplinary. The goal of this project is to engage middle school students in constructing their own knowledge by participating in virtual experiments, by helping them establish a context for the discoveries, and by understanding issues involved in forming public health policy. An experienced team representing medicine, biology, history of science, education, and information technology, will oversee the project, assuring the integrity of the site content, and incorporating cutting-edge technology.

http://medmyst.rice.edu

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Middle School Life Science-Education Partnership – Phase I
University of Milwaukee - R25 RR14267

This project will promote inquiry-based learning of life science concepts in metropolitan Milwaukee's middle schools by developing eleven instructional modules that utilize the study of non-mammalian organisms in the classroom. The project will also offer to pre-service teachers an opportunity to develop a strong foundation in life science.

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Molecules and Health: **Exhibition and Education Program**
New York Hall of Science - R25 RR15641

This science education project is a partnership among biomedical researchers, educators, and the Association of Science Technology Centers (ASTC), to develop a traveling exhibit on the role of molecules in health and illness, and on prevention that will target general audiences and middle and high school students. The exhibit will be based upon *Marvelous Molecules-The Secret of Life*, a permanent exhibition at the New York Hall of Science, and will include interactive biomedical and health related exhibits, materials for teachers and families, demonstrations, and Web site dissemination. This exhibition will travel nationally to science centers through the ASTC's touring program.

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My Home, Planet Earth (MHPE)
The Children's Museum of Houston - R25 RR15676

The Children's Museum of Houston will create a traveling environmental health exhibit based on an existing school curriculum developed at the Baylor College of Medicine. This exhibit will be the basis of formal and informal learning programs that increase the understanding of environmental health issues among children ages 5-10. Within six years, this exhibit will visit 18 youth museums, science centers, and health museums. In addition to the exhibit's visitors, families will participate in a *My Home, Planet Earth* family learning event; teachers will be introduced to Baylor's *My Health, My World (MHMW)* curriculum, and many will participate in a

day-long *MHMW* workshop. Scientists will partner with host museums to enhance the learning and community impact of the project, and children will visit the exhibit as a school field experience.

http://www.cmhouston.org/Exhibits/MHPE/MHPE-Travel.html

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***New Frontiers in Physiology* – Phase II Improvements**
American Physiological Society - R25 RR12315

This project is designed to improve science education by building the scientific research community into a supportive infrastructure for teachers. Project goals will be accomplished through the Summer Research in Physiology Program and the joint Teacher-Researcher Physiology Inservice Program. Special features of these programs include: 1) connecting teachers to global resources via computer networks; 2) developing for teachers professional development activities facilitated by the Internet; and, 3) developing an Internet-accessible database of physiology lessons, and special interactive Web pages, focusing on gender, and on racial and ethnic equity.

http://www.the-aps.org/education/frontiers/index.htm

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Partners in Behavioral Health Sciences – Phase I and II
University of Arkansas - R25 RR15976

This project is a partnership of clinicians, researchers, and educators to develop and disseminate a science-based program on the biology, prevention, and treatment, of mental illness to teachers, K-12 students, and the general public. The project design includes a museum component and a variety of experiential learning materials. Six modules with substantial scientific grounding will

be developed to focus on mental health disorders, high rates of prevalence and severity, and the availability of evidence-based treatments. The project will include summer teaching sessions, presentations at state-wide meetings, interactive tele-video sessions, collaboration with a science museum, student internships, and the development of teacher tool kits, classroom resources, computer-assisted interactive programs, videotapes, and other experiential learning materials.

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Partners in Health - Teachers, Students, Public – Phase II
University of Arkansas, Medical Sciences - R25 RR12346

This project will expand and disseminate a health-science education program developed in Phase I for teachers and students, including blind students. Using the Internet and computer-assisted learning, and telecommunication technologies, the program will target additional grades 7-12 teachers and students in Arkansas and other states, and will expand to grades K-6 teachers and students.

http://k14education.uams.edu

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A Partnership Linking Formal Informal Education
Washington University - R25 RR15603

Washington University faculty and staff, in partnership with educators from the St. Louis Science Center, the Missouri Botanical Garden, and the St. Louis Zoo, will generate eight inquiry-based instructional units that are designed to link formal classroom instruction with the investigative learning environments of these informal science education institutions. This project uses the expertise of both the formal and informal environments to create experiences that enhance the

biology curricula of middle and high school classrooms.

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Peabody Fellows Biodiversity and Human Health Program
Yale University - R25 RR15623

This project will develop and implement a teacher-training program, a teacher-designed curriculum for grades 3-8, and community outreach activities that focus on relationships between biodiversity and health. This project is built on an existing program with established partnerships that facilitate integrating the curriculum into the schools. The partners in the Peabody Fellows Biodiversity and Human Health Program are the Peabody Museum of Natural History, several components of Yale University, the New Haven Public School System, the Connecticut Agricultural Experiment Station, the New Haven Solar Youth, and the Connecticut Academy for Education in Math, Science and Technology.

http://www.peabody.yale.edu/education/fellows/

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***Positively Aging*® - Phase II**
University of Texas Health Science Center, San Antonio - R25 RR12369

This project will disseminate the *Positively Aging*® program developed in Phase I: an innovative program with potential to enhance both science and math skills of middle school students, and to provide content learning in gerontology that is well-developed, designed for integration into the curriculum, and meets state education standards. *Positively Aging*® is an educational partnership developed among the Aging Research and Education Center, the University of Texas Health Science Center at San Antonio, and San Antonio's Northside Independent School District. An

interactive Web site will be developed to facilitate and support distance learning to improve students' knowledge and skills specific to math and science curricular elements, and to facilitate professional development for teachers in the areas of gerontology and the aging process.

http://salud.uthscsa.edu:8900/public/posag2/

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Professional Development for the Milwaukee Public Schools
Milwaukee School of Engineering - R25 RR15236

This is a comprehensive professional development project in science education, especially molecular biology, for Milwaukee public high school teachers. Teachers will be trained to integrate computer-based modeling with hands-on physical modeling of DNA and protein structure. These professional development courses are based on the *National Science Education Standards* that emphasizes hands-on, inquiry-based pedagogy using innovative curricular materials.

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***Project DiSH* – Phase I**
Howard University - R25 RR14217

Project DiSH (*Di*=diabetes; *S*=stroke; *H*=hypertension) will develop a school-based program that increases awareness of the medical and lifestyle factors responsible for diabetes, stroke, and hypertension. Currently, these diseases affect a disproportionate number of minorities nationwide. Lead teachers in two predominantly minority school systems will receive training in an intensive summer session at Howard University and then will mentor others. All instructional activities will be linked to the participating school systems' ongoing curriculum. Project staff will develop support materials, including an interactive CD-ROM, and a resource notebook of

instructional activities derived from the intensive summer course.

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Public Health Organization at Morse High School – Phase I Study
University of California, San Diego - R25 RR12389

This project is a collaboration between the University of California, San Diego, School of Medicine and two San Diego High Schools; Morse High School (with more than 90 percent minority students), and Helix High School (with approximately 50 percent minority students). The project goal is to increase minority students' interest in biomedical and health-related sciences and establish a student-run public health organization at Morse High School that will then disseminate the information and knowledge to elementary and middle school students in the cluster (a peer-based teaching program).

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San Diego State University SEPA Program
San Diego State University (SDSU) - R25 RR12391

The goal of this program is to develop a pipeline training model in the biomedical sciences for 150 to 200 minority and disadvantaged K-12 students each year, through teacher development, curriculum enrichment, and parent involvement. This project is a partnership among the Biology Department in SDSU's College of Science, the San Diego Mathematics Project in the SDSU College of Education, the San Diego Elementary Institute of Science, K-12 schools, and Cox Communications of San Diego. This program will foster long-term partnerships with teachers to improve teaching skills in critical courses such as cell biology, chemistry, and math; and, technology infusion in classrooms and biological sciences laboratories. The developed materials will be disseminated in either print or an electronic media format.

http://www-rohan.sdsu.edu/~sepa/index.htm

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Science and Technology Education Partnership (STEP)
Vanderbilt University Medical Center - R25 RR15256

The goal of this project is to create a Science and Technology Education Partnership (STEP) between Vanderbilt University and Tennessee's public schools. The partnership will employ, statewide, a variety of current technologies to communicate, promote, and enhance, science education for teachers and students. The STEP project will focus on integrating technology into classrooms for grades 5-12, and enhancing the content and research skills of grades 5-12 science and health teachers.

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Science Partnerships for Hands on Learning
University of Rochester School of Medicine and Dentistry - R25 RR12411

This teacher/scientist partnership project is a collaboration between the University of Rochester Environmental Health Sciences Center and the Rochester City School District. The project goals are to: 1) provide opportunities for teachers in grades 5-12 to develop outreach programs within their schools; 2) increase the number of under-represented minorities in the sciences; 3) foster students' interest in science through hands-on, inquiry-based activities; and, 4) aid students in increasing their level of science literacy by using technology such as computers, the Internet, and videos. Various science outreach projects provide a school-year mentoring program, lecture series, and a summer program.

http://www2.envmed.rochester.edu/envmed/EHSC/outreach/COEP.html

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Shaping Health Behaviors Through Science Enrichment
Colorado State University Health Science Center - R25 RR15646

This obesity prevention project, for students in grades K-6, links nutritional science experts with classrooms at elementary schools to provide science enrichment in class, after-school, and through outreach activities to teach healthy lifestyles. A diverse team of classroom activity leaders (health professionals, farmers, chefs) will visit the classroom throughout the school year to deliver a program that is customized to build on the needs, knowledge and opportunities of the class and the school. The Dept of Food Science and Human Nutrition at Colorado State University will lead this program and partner with the Culinary Arts Program of Johnson & Wales University, the Museum of Nature and Science, the Children's Museum in Denver, and the Discovery Center Science Museum in Fort Collins. The Partnership will aim to reduce the rate of childhood and adolescent obesity in Colorado by introducing science and math enrichment programs in elementary schools as well as in science museum-based programs directed at students and the community. The project will be evaluated by: a) determining the rate of weight and body mass index (BMI) gain; b) improvement in science-based health knowledge; and, c) improvement in health behaviors in elementary school students.

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***SimHealth:* System Dynamics and Health Education**
Oregon Health Sciences University - R25 RR12410

This project is a partnership among the Oregon Health Sciences University (OHSU), the Portland Public Schools, and the Apprenticeships in Science and Engineering program. Project goals are to develop a series of System Dynamics (SD) computer models as an educational tool, and to

develop curriculum materials, tutorials, worksheets, and videos to illustrate basic health science concepts. The project will also involve computer workshops, summer research internships, and apprenticeships at OHSU in SD modeling for high school teachers and students to augment the use of the SD model in the high school classroom or laboratory setting.

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Supporting Student and Teacher Inquiry in Bioscience
Chicago Museum of Science and Industry - R25 RR15614

This project is a partnership between the Museum of Science and Industry and the Northwestern University to: 1) develop a curriculum for middle and high school students grades 6-10; and, 2) establish a professional development program for teachers, highlighting cardiovascular health with emphasis on cardiovascular disease prevention. Telecommunications technology will link teachers and students with Museum and University educators, researchers, and clinicians, to provide an innovative, inquiry-based science education curriculum.

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Typical and Atypical Brain Development: SEPA Project Grades 3-6
Eunice Kennedy Shriver Center - R25 RR13433

Scientists at the Eunice Kennedy Shriver Center and educators and administrators at local elementary schools have joined together to develop a curriculum for students in grades 3-6. The project goals are to: 1) provide students with curricular learning experiences that will establish the foundation for broad, socially-connected understanding of how the brain works, and how brain functioning relates to behavior; and, 2) introduce students to typical and atypical brain development, and the behavioral effects of several public health factors (such as drugs) and

environmental factors on brain function. A multi-track, multi-modal approach is used, recognizing that children are a heterogeneous group with different histories, interests, and strengths. The multi-modal approach includes classroom demonstrations, small group cooperative learning exercises, and computer-assisted self-study programs. A Web site is used to publicize and disseminate the activities.

http://www.shriver.org/Education/EducationOutreach/SEPA/

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Tissue Engineering Show and Educational Partnership
Pittsburgh Tissue Engineering Initiative - R25 RR15619

Using a planetarium and related technology, this project will produce an interactive, multi-media show about tissue engineering to teach students and the public about cells, tissues, and science. This project goal will be achieved by establishing a unique partnership in scientific and medical education that brings together university researchers, clinical leaders, science center experts, students, educators, and community representatives at all levels. The Association of Science and Technology Centers will coordinate a presentation system that will utilize portable interactive technology, and that will be deployed to planetaria nationwide.

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Tissues of Life
Science Museum of Minnesota - R25 RR15645

This multifaceted model biomedical science education project focuses on the importance of human tissues in biological development, function, and disease, and the ethical issues related to tissue research. It also includes exhibits that support the *National Science Education Standards*

for students in grades 5-9, a scientist mentor program for high school students, and community outreach programs that involve visiting scientists from the collaborating University of Minnesota's Cancer Center, Medical School, School of Public Health, and College of Veterinary Medicine. This 1,500 square-foot exhibition will be located in Science Museum of Minnesota's new Human Body Gallery. It will consist of an introduction to tissues and four topical exhibit clusters.

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University of Washington Internet Neuroscience Resource – Phase II
University of Washington - R25 RR12312

Phase II of this project will disseminate neuroscience resource materials that were developed in Phase I to science teachers at secondary schools. CD-ROM technology will be used to increase both access and the program's appeal by adding animation and audio components that apply standards for inquiry-based science education. An Internet version of the Neuroscience Resource will continue to be available.

http://faculty.washington.edu/chudler/neurok.html

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Waksman Student Scholars Program – Phase II
Rutgers University - R25 RR15270

The basic tenet of the Waksman Student Scholars Program (WSSP), which has recently entered its eighth year, is that students learn science best by actively engaging in it. This means investigating unsolved challenging problems, and discussing prospective solutions within a community. The aim of this project is to expand the WSSP from its current local venue so that it

can reach any student who can connect to the Internet. To accomplish this goal, WSSP proposes to offer the Program in a new distance-education course called *Genes, Genomes, and Human Genetics*. The course will be supported by a comprehensive series of Internet-based resources.

http://avery.rutgers.edu/WSSP/Begin/index.html

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Web-based Curriculum Drawn from Science Research

University of Utah - R25 RR15650

In a collaborative team approach, science educators, scientists, and curriculum designers will develop Internet-based genetic science curriculum units for high school students. Units will emphasize themes in genetics, inquiry-oriented approaches, and relevance to students' lives. To engage students in the process and nature of science research, curriculum materials will be developed in part from original research in a collaboration with AAAS/*Science*. Curriculum will be disseminated free of charge via the Internet and include extensive support materials for teachers.

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Yeast Mutants as an Educational Tool – Phase I

University of Cincinnati College of Medicine - R25 RR12357

This science education partnership project is between the University of Cincinnati College of Medicine and students in the Cincinnati public school system. It is a hands-on and inquiry-based

project, with the goal of stimulating school-age children in science, and developing a method to involve them in real scientific research, in order to enhance their educational science curriculum. Teachers are first trained in the area of basic cell biology and molecular biology, so they can motivate and engage students in real and state-of-the-art research projects that meet national standards.

http://yeastmutants.uc.edu

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